

Developing Character-based Thematic Teaching Materials with Model of Mind-Mapping Plus for Early Grade Students at Elementary School

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Abstract—This study aims at developing character-based thematic teaching materials using Mind-Mapping Plus Model. It is expected that the teaching materials could foster students' positive behavior. The outcomes of the study are teaching materials, guidebooks, and worksheets. These products were assessed in the aspects of validity, practicality, and effectiveness. They have also been tested on teachers and third-grade elementary school students in Bone regency, South Sulawesi, Indonesia. Data collection was conducted through observations, interviews, questionnaires, and testing. The results showed that the teaching materials, guidebooks, and worksheets are valid, practical and effective to be disseminated and implemented in learning.

Keywords—Mind-Mapping Plus Model, character-based thematic teaching materials

I. INTRODUCTION

The role of the teacher in curriculum implementation greatly determines the learning success of students. The teacher is the main actor who has a very strategic position in the implementation of education. The teacher must have a role as a tutor, resource linker, gatekeeper, facilitator, and catalyst. The role of the teacher is required not only for students to master the contents of the cognitive aspect in the curriculum, but also the affective aspect that leads to character building. This can be realized if it is supported by the development of teaching materials that favor character building.

Government Regulation No. 19 the Year 2005 Article 20 [1] confirms that teachers are expected to develop their own learning materials. Similarly, the application of the Indonesian curriculum in 2013 requires character-based learning to prepare the future generation. But in reality, the teacher awareness in developing teaching materials is still relatively low. One of the causes of the low quality of education is reflected in the lack of teachers' ability to seriously develop teaching materials [2].

Various efforts have been carried out by the government so that teachers are able to develop teaching materials, especially in the early grades of elementary school. Training a large number of teachers; implementation of professional teacher education; funding assistance sourced from School Operational Assistance; including increasing professional teacher allowances. However, the ability of teachers in this field, especially in the early grades of elementary school, has not shown any changes in accordance with expectations.

As a solution, efforts are needed to develop teaching materials that are based on the formation of students' character, which in this case is called character-based thematic teaching materials with Mind-Mapping model [3]. The teaching material is a learning model that focuses on some activities of students thinking creatively to produce ideas, record what is learned, or plan new tasks [4].

Substantially, the 2013 Curriculum which is now applied in Indonesia employs thematic approaches. Thematic learning requires the creativity of teachers to develop teaching materials. This ability is very necessary for an effort to integrate subjects or basic competencies from the subjects taught. Creativity makes it easier for teachers to apply thematic approaches by trying to develop thematic teaching materials with Mind-Mapping model [5]. Vitulli & Giles [6] stated that the strength of mind mapping is in having the central concept, as well as linked concepts, expressed in images wherever appropriate. The advantages of the Mind-Mapping model is that it has the main concept and related concepts displayed with pictures or charts. Thus, Mind-Mapping model will encourage and challenge teachers to continuously develop subject matter in accordance with the main concept chosen to develop relevant concepts.

In this study, the researcher will use a Mind-Mapping model that has been used in the concept of integrated learning to be one of the models for developing thematic teaching materials for elementary school students. Thematic learning becomes more transparent and accommodative when designed with the Mind-Mapping model [5]. Mind-Mapping is one of the development models of teaching materials that are in line with the 2013 curriculum. Therefore, teaching materials as part of the learning design system should also have a Mind-Map dimension. According to Buzan [7], the application of Mind-Map can provide very meaningful information in a simple way. Furthermore, he states that Mind-Mapping Technique prepares the mind in the way that information can be used in logical and imaginary ways to make an image in the brain.

Mind-Mapping can reveal the knowledge learned previously by the students and accommodate new knowledge [8]. Mind-Mapping is very interesting for students and makes the atmosphere of the learning process fun and can be used in various situations. Mind-Mapping as a learning tool is feasible and effective for all subjects and at all grade levels [6]. Fitriani [9] showed that the application of mind-mapping models in thematic learning could improve the quality and learning outcomes of elementary

school students. By character-based thematic teaching materials with Mind-Mapping model, students can create mind maps to develop ideas, identify and integrate clearly and creatively what they have learned or what they are planning.

II. LITERATURE REVIEW

A. Character-based Teaching Materials

In general, teaching materials are defined as a number of tools provided by the teacher so that students can learn. The set of materials is arranged systematically which allows the creation of conditions for students to learn. Allwright [10] states that teaching materials must be able to guide students to study. Besides, he said that textbooks are too inflexible to be used directly as instructional material. According to Wiles [11] even though most of the teachers similarly use textbooks in the learning process, some teachers in a different area have textbooks with different publications, making it difficult to coordinate and regulate teaching materials. In connection with that, curriculum material that contains minimal competencies must be developed by the teacher to improve students' understanding in the learning process.

In this study, character-based teaching materials are defined as a way of thinking and acting to develop thematic teaching materials in the early grades of elementary school. This paper focuses on early class, which is based on commendable moral values such as honesty, tolerance, cooperation, discipline, mutual respect, frugal living, and responsibility. When a teacher develops teaching material, it must contain explicitly one or several moral values that will be familiarized by students both in and outside of the school. Each curriculum that is applied must contain the principle of balance between the cognitive, affective and psychomotor domains. The problem then arises when the teacher implements a lesson plan in the learning process. By using the Mind-Mapping Plus Model in developing early grade elementary school teaching materials, this phenomenon will be minimized. Thus, the teacher teaches not only by using textbooks but also integrates it with character education that will shape the students' character who is confident, responsible and behaving in a good manner.

B. Thematic Learning

Thematic learning can be interpreted as a learning activity by integrating several subjects in one theme / topic of discussion. According to Prihantoro [12], thematic learning is an attempt to integrate learning knowledge, skills, values, or attitudes, and creative thinking using themes. Min et al. [5] suggested that thematic learning can encourage students to think critically, creatively, and innovatively.

Thematic learning is carried out using the principle of integrated learning. Integrated learning uses themes as a unifying learning activity that combines several subjects at once in one face to face, to provide meaningful experiences for students. Integrated thematic learning is one of the learning models implemented by combining various contents of organized learning material in certain topics, developing indicators, and achieving learning objectives [13]. The goal is to help students to construct the experience

they gain into something that is beneficial to themselves and others [14]. Fulfillment of competencies in the early classes emphasizes the basic abilities of 3 R (Read, wRite, and aRitmatic) which are based on attitudes and character practices according to the character values that want to be developed. The learning will be integrated into thematic concepts that are very strong which are difficult to separate into the domain of certain disciplines, making students active in learning by utilizing the environment around and with fellow friends [15].

C. Mind-Map Model

Mind-mapping is a creative way for students to generate ideas. Mason [16] states that mind mapping is an excellent way to create and organize ideas before starting writing. According to Vitulli & Giles [6], the application of Mind-Mapping requires students to make mind maps that allow them to clearly and creatively identify what they have learned or what they are planning. Long & Carlson [14] stated that mind maps work well as their visual design enables students to see the relationship between ideas, and encourages them to group certain ideas together as they proceed.

According to DePorter & Hernacki [17], Mind-Mapping uses visual and sensory reminders in a pattern of related ideas, such as a road map used to learn, organize and plan. This Mind-Mapping can generate original ideas and trigger easy memories. Hofland [18] states that mind-mapping and multiple intelligences are both teaching techniques which try to identify with both rights and left brain learning styles.

Nowadays, many have felt and recognized that Mind-Mapping is very useful in human activities because it produces notes that directly describe the branches of the mind of students so that they easily understand the contents of the lesson even if they only glance at the notes. With Mind-Mapping, students can get a comprehensive picture of the content and scope of the teaching material to be studied. According to Fiktorius [8], mind map helps students with the remedial requirements that are often needed. There is empirical support for the use of mapping tools in enhancing, retaining and improving knowledge.

By mind-mapping, at least students get the initial experience that is indispensable for receiving new experiences. It can help students in terms of planning, composing and explaining thoughts, and they learn more quickly and efficiently. Parikh [3] stated that this method is suitable for teachers and students for the recurrence and easy to understand hard topics. In addition, it also promotes student knowledge. This technique increases the creative power in new concepts and motivation to study the students.

III. RESEARCH METHOD

The research design is Research-based Development. This study aims to produce character-based thematic teaching materials with Mind-Mapping Plus model. The study was designed using Borg and Gall's procedural model [19]. The research subjects were determined by purposive sampling, they are: (1) an expert in the course and an expert in curriculum and learning technology, and three teachers who guide the thematic learning; (2) nine model teachers; and (3) early grade of elementary school students. Field trials were carried out in three elementary schools in Bone

regency Indonesia. The selection of field trial locations is based on schools at different levels of accreditation (each representing schools with accreditations A, B, and C). To collect data, the researcher conducted observations, interviews, questionnaires, a test of learning outcomes, and documentary analysis. Data analysis was carried out qualitatively and quantitatively, both at the time of data collection and after data collection was carried out [20]. To get validity, practicality, and effectiveness, the criteria are defined from very good, good, fair, and poor. The ultimate goal of this development activity is to produce character-based thematic teaching materials with a valid, practical and effective Mind-Mapping Plus model.

IV. FINDINGS AND DISCUSSION

Analysis of the study was carried out by following the four stages of research, namely needs analysis, validation, practicality analysis, and effectiveness analysis. In each stage of the analysis, the mixed analysis was used that integrated quantitative and qualitative analysis [20].

A. *Description of the urgency for developing teaching materials*

The initial step of this study was to conduct a needs analysis. A needs analysis was conducted to find out the needs of developing thematic teaching materials with Mind-Mapping Plus model for early grade students at the elementary school. The results showed that: the concern of teachers developing teaching materials was still relatively low. One of the causes of low education quality is reflected in the little attention of the teachers in creating their own teaching materials. The low awareness of teachers in developing teaching materials affects the ability level in aspects of knowledge, attitudes, and skills desired by the students. As the effort to overcome the problem, there was conducted a study on the contents of the 2013 curriculum, to identify thematic learning themes with the nuances of Mind-Mapping. The result showed that the themes of thematic learning in the 2013 curriculum applied in Indonesia are mind-mapping. The themes of mind-mapping for an early grade of elementary school were like: me, my interests, my activities, my family, my experiences, etc. In the development process, it was detailed into several primary subjects and sub-materials with the purpose of developing teaching materials. These topics consist of supporting topics and character-based topics. The thematic learning themes identification in the development resulted in character-based thematic teaching materials with mind-mapping plus models for early grade students of elementary school.

B. *Validity Analysis*

Validation is carried out by asking for expert validation on product components. Two experts and three thematic learning guides were involved in product assessment. They were a course expert, a curriculum expert and an education technology specialist, and three thematic learning guides. The assessment results from the experts and thematic learning guides were analyzed for content and construct validity. The assessment criterion is a scale of 0 - 4 (very valid, valid, less valid, and invalid). The indication of the validator's assessment was based on feasibility: content, presentation feasibility, language feasibility, and media feasibility. Based on the results of the product validity

analysis, the average result of the validator's assessment was categorized as "Very Valid." The result description of the validator's assessment of the three types of products was: the textbooks that have been produced were 3.63; the guidebook was 3.62, and student worksheet was 3.64. The average value was 3.63, with a percentage of 90.75%, it was in "very valid" scale. The findings indicate that the product of teaching materials and the supporting devices have a high quality of content and constructs for learning purposes. It was also recommended that the teaching media and student worksheets to be more factual and the language used needs to be adjusted to the students' characteristics. As the response to these suggestions, the images / graphics contained in the product are refined by taking a more factual picture of the school environment and the environment in which students live. In addition, the language used is adjusted to the age of students. Based on these findings it was concluded that the product of teaching materials and the supporting devices are qualified and constructive for the benefit of the target users.

C. *Practicality Analysis*

Practicality analysis is an analysis carried out to find out whether the products can be applied easily by both teacher and students. It was in the form of formative assessment. The formative assessment in this study was a field assessment for product improvement through limited testing of nine model teachers, and the testing was extended to 60 early grade elementary school teachers. This assessment was carried out by observing, interviewing and responding to the users; they were teachers and students of the early grades of elementary school. The indication of the assessment was feasibility includes content, presentation, language, and media. The result showed that the three types of products were on an average of 3.71 with a percentage of 92.75% or classified in "very good" qualification. The result of the qualitative analysis showed that the components of language required to be adapted to the age of the students. Thus, the product of teaching materials that have been validated and analyzed in practicality analysis can be easily applied to the early grade students of elementary school.

D. *Effectiveness analysis*

The effective analysis aims to find out whether the product can improve the ability to create mind mapping, learning outcomes, and character building of good moral value for elementary school students. This analysis was conducted by trying out the product toward the students. The data collection was carried out by pretest and posttest, a test of creating mind mapping and questionnaire of student response. The analysis considered to be effective if the three kinds of assessment have reached the standard, they are: (a) student learning achievement, (2) the results of students' thinking performance, and (c) students' positive responses. This test involved teachers and students of the early grade of elementary school. The product trials were carried out in nine meetings of teaching and learning process with different themes in three elementary schools in Bone Regency, South Sulawesi, Indonesia. The results showed that the application of thematic teaching materials with Mind-Mapping Plus model in the early grade students was categorized as effective. It is characterized by the students' learning achievement which was in "good" category, the thinking performance results of students in "good" category;

and the response of students which was categorized as "very good." Therefore, the final assessment result of the teaching materials as well as the learning tools is valid, practical, and effective, so that it is "feasible" to be used in the early grade elementary school students.

The product of teaching materials is also equipped with supporting tools in the form of guidebooks and student worksheet. The three types of products were then tested with three stages, i.e., validation, practicality analysis, and effectiveness analysis. Based on the quantitative analysis results of the product aspects, it shows that the three types of products are valid since it was in the "very valid" category. Similarly, in qualitative analysis, suggestions from experts and field testing have obtained improvements. The process of determining the product's validity was carried out in accordance with Borg & Gall's [19] view that states that the assessment by experts may be used as a principle to determine the validity of a product. According to Marxt & Hacklin [21], testing the validity of curriculum products by following the steps that have been established is a matter that is carried out before its use. Furthermore, teaching materials that have fulfilled the qualifications of the content and structure are tested in a field trial. This test intended to find out whether the product produced was practical and effective. The assessment involved the teacher and students of the early grade elementary school. Based on the results of quantitative testing, the response of teacher is qualified "good," and the result of students learning outcome test shows that the application of the instructional materials and tools can improve learning outcomes, encourage thinking performance, and respond positively to students with "good" qualifications.

Mind-Mapping is not difficult and expensive, but it requires a willingness to develop the subject matter. In a Mind-Mapping several components that must be considered are the main issues, sub-issues, and proportionality. The main issue of Mind-Mapping is detailed into several main subject matters and sub-materials for the development of teaching materials. These topics consist of supporting topics and character-based topics. The arrangement of each topic is handled by the teacher according to the depth, breadth of the material content, students' abilities, and the learning resources / media available at the school. Preferably, the selection and arrangement of Mind-Mapping topics are based on the principles of learning from easy to difficult things, from close things to the distant ones, from the simple one to the complex one, and from the concrete to the abstract things. So, the student learning experience can be more meaningful. A meaningful learning experience will build good character which is: encouraging mastery of concepts, improving high-level scientific thinking skills, improving problem-solving ability, and training creativity.

V. CONCLUSION

This research was carried out to produce character-based thematic teaching materials with a Mind-Mapping plus model for fostering the ability to create a mind map for

elementary school students. Based on the results of the data analysis it was concluded that: the products of teaching materials, guidebooks and worksheets have a high degree of validity, practicality, and effectiveness. Thus, the product is "feasible" to be used for early grade elementary school students.

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